

SMITHSONIAN INSTITUTION.

UNITED STATES NATIONAL MUSEUM.

Dear True

The neat line of the
plates for the Coos Bay
Miocene will average
 $9 \times 6\frac{1}{2}$ inches, at a pinch
 $9\frac{1}{2}$ inches may be used,
Will you try the Williams
process for the skull?

W. H. Dall

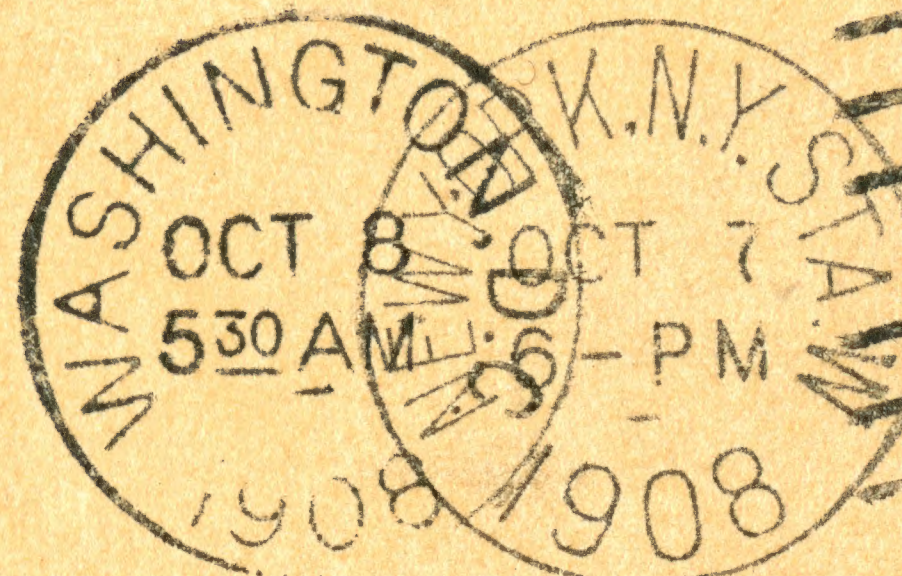
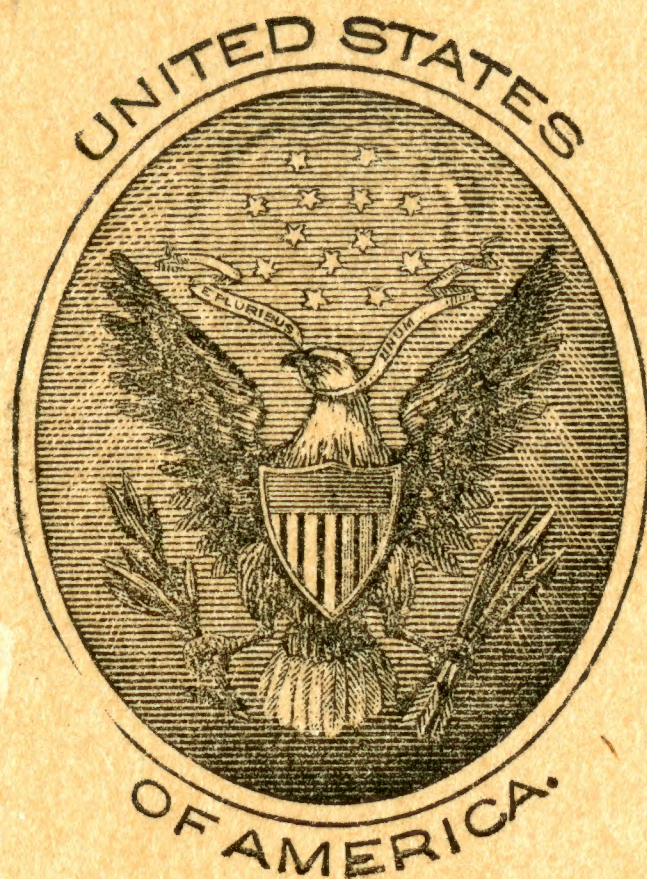
4.5

7:4.5

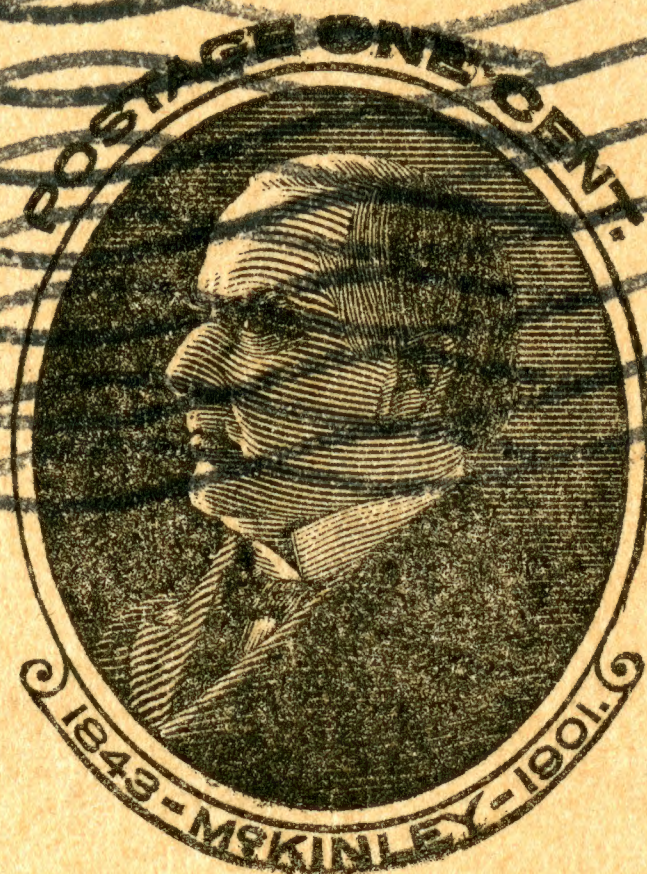
7.5 : 4.5 :: 7.75 :

$$\begin{array}{r} 4.5 \\ \hline 3875 \\ 3100 \\ \hline 7.5) 34875 / 4.65 \\ 300 \\ \hline 487 \\ 450 \\ \hline 370 \end{array}$$

$$\begin{array}{rcl} 6 \frac{1}{2} & = & 6 \frac{3}{6} \\ 4 \frac{2}{3} & = & 4 \frac{4}{6} \\ \hline & & 1 \frac{5}{6} \\ & & \frac{1}{2} \frac{5}{12} \end{array}$$



4



THE SPACE ABOVE IS RESERVED FOR POSTMARK.

POSTAL CARD.

THE SPACE BELOW IS FOR THE ADDRESS ONLY.

Dr. Frederick W. True
Smithsonian Institution
Washington D.C.

American Museum of Natural History

New York, Oct. 7, 1908

Please accept my hearty thanks for The Fossil
Cetacean, *Dorudon serratus*

Gibbes

just received.

Henry F. Osborn
R

X Diagnosis of a new genus and species of fossil sea-lion from the Miocene of Oregon. Smithsonian Miscell. Colls., Quart. Issue, 48, pt. 1, no. 1577, pp. 47-49. May 18, 1905.

A further account of fossil sea-lion Pontoleon magnus, from the Miocene of Oregon -

By Frederick W. True
Head Curator, Department of Biology,
U.S. National Museum -

In the Smithsonian Miscellaneous Collections (Quarterly Issue), no. 1577, -
I published a diagnosis of a new genus and species of fossil sea-lion, based on a skull from Oregon^x. As this article is brief and contains a summary of the circumstances under which the skull was found, as well as measurements, it is repeated here in full.

Fossil Otariidae
(From Trouessart's Cat., Suppl., 1904.)

Otaria jubata (foss.) Amegh. Pleist. Argent.
Mam. foss. Argent., 1889, 342

Zalophus williamsi MacCoy - Plio. Vict., Austral.
Prod. Palaeont. Victoria, Dec. 5, 1879,
pls. 41 & 44; Allen, Pinnipeds, 1880, 770

Arctocephalus fischeri Gen. & Amegh. Olig.? Parana, La Plata
Mam. foss. Amer. Merid. 1880,
p. 223; Amegh., Mam. foss.
Argent., 1889, 342 (Arctophoca)

Arctocephalus forsteri (foss.) ~~Lesson~~ ^{Peron}, Pleist. N. Z.

Nothing in this Voyag. Terres Australes,
place. Des 1816, 2, 37-

Peron go to New
Zealand at all?

(Houssart - 1897)

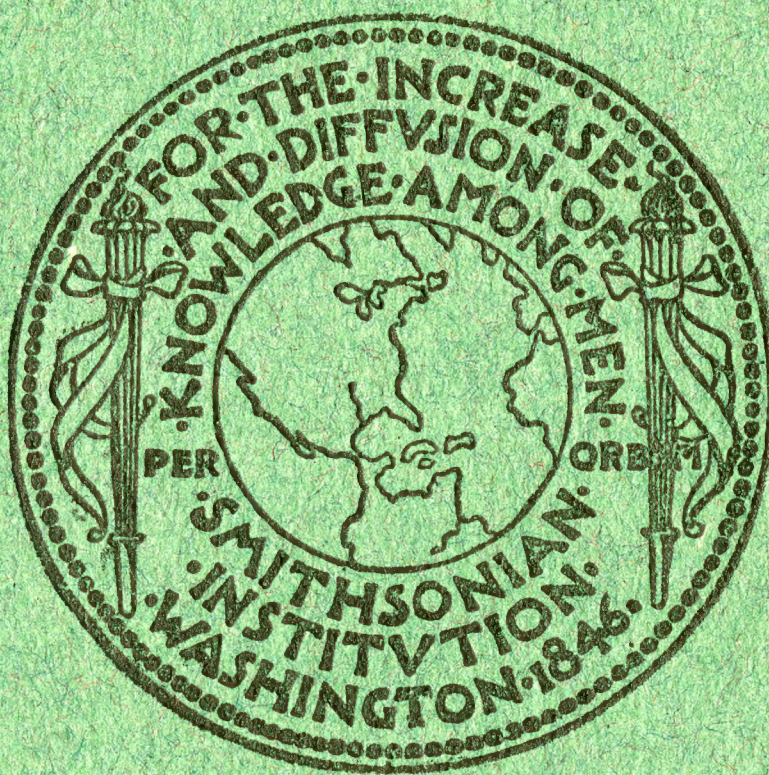
Fossil Pumped

- ~~X~~ Gervais ^{s.e.} ~~Ann. Mus. Nat. Hist. Argent.~~ 1889, 342
Aneghino ^o ~~Mainu. fossil. Amer. Merid.~~ 1880, 220
~~X~~ Aneghino ^o ~~Mainu. foss. Rep. Argent.~~ 1889, 342
~~X~~ Lesson ^{Not in S. C.} ~~Voyage aux Terres Australes~~, 2, 1816, p. 37
Gratiolet ~~X~~ ~~Bull. Soc. Geol.~~ 15, 1858, 624, pl. 5
~~X~~ Gervais ^{508 73} ~~Zool. & Pal. Generale~~, 1, 1867-69, 87
~~X~~ DeKay ^{508 73} ~~Nat. Hist. of N. Y.~~, 1, 1842, 56, pl. 19
Haukester ~~X~~ ~~Quart. Journ. Geol. Soc.~~, 21, 1865, 226, pls
" ~~X~~ ~~Trans. Linn. Soc. London~~, 2, 1882, 213 { 10-11
Du Bus ~~X~~ ~~Bull. Acad. Belg.~~, 24, 1867, 566
Gervais ~~X~~ ~~Journ. Zool.~~, 3, 53, pl. 11. 3:570
Van Beneden ~~X~~ ~~Oss. fossil. Auvers~~, 1877, 50, pls. 1-6
" ~~X~~ ~~Bull. Acad. Belg.~~, 32, 1871, 5, pl. 9
" ~~X~~ ~~Id.~~, 41, 1876, 783
De la Fortie ~~X~~ ~~Act. Soc. Linn. Bordeaux~~, 1872, (29) p. 113; 257
Gervais ~~X~~ ~~Mem. Acad. Sci. Montpellier~~, 2, 1852, 208,
" ~~X~~ ~~Ann. Sci. Nat.~~, 20, 1853, 282, pl. 13 { pl. 6 fig 4
" ~~X~~ ~~Zool. & Pal. Francaise~~, 2^d ed. 1859, 272, pl. 82, fig 4
Van Beneden ~~X~~ ~~Bull. Acad. Belg.~~ 41, 1876, 800, 799, 802 { pl. 20, figs 5-6
" ~~X~~ ~~Oss. fossil. Auvers~~, 1877, 75, pl. 16, 76, pl. 16;
" ~~X~~ ~~Ann. Mus. Nat. Hist. Belg.~~, 1, 1877, { 77, pl. 17; 69, pl. 13; 78,
~~X~~ Nordmann ~~Paleont. Sud-Russland~~, 1858 { pl. 18; 80, pl. 18, 72,
Leith Adams ~~X~~ ~~Quart. Journ. Geol. Soc.~~, 35, 1879, 517, pl. 25,
" { figs 1-2
Leidy, J. ~~X~~ ~~Proc. Acad. Nat. Sci. Phila.~~, 6, 377, 1852-3
Van Beneden ~~X~~ ~~Bull. Acad. Belg.~~, 8, 1859, 123; 32, 1871, 5;
" 41, 1876, 799.
Newton ~~X~~ ~~Quart. Journ. Geol. Soc.~~, 49, 1890, 446, pl. 18,
" { fig. 3

DIAGNOSIS OF A NEW GENUS AND
SPECIES OF FOSSIL SEA-LION FROM THE
MIOCENE OF OREGON

BY

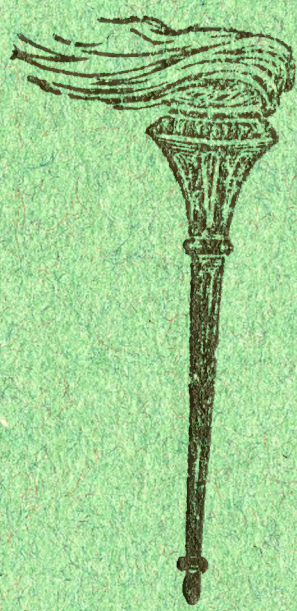
FREDERICK W. TRUE



Reprinted from SMITHSONIAN MISCELLANEOUS COLLECTIONS
(QUARTERLY ISSUE), Volume 48, Part I.

No. 1577

City of Washington
Published by the Smithsonian Institution
May 13, 1905



The relation of Pontoleon to other groups of mammals, and especially to the Basilosauridae is a matter of much interest. ^{The Basilosaurus group of} Basilosaurus (= Zenaglon Owen), as well known, form the subject of much controversy, and opinions regarding it vary widely. While I agree with those who regard it as possessing ^{an} ^{in a} ^{manner many} conspicuous characteristics of the Otariidae, I do not share the view expressed by Mr. F. A. Lucas and others that it has nothing of the Cetacea about it, nor do I think that the characters which some (including myself) regard as Cetacean, can be explained away on the ground that they are ^{merely} adaptations for aquatic life. The weak, erect condyle of the mandible, the enormous ramus mandibularis, and internal mandibular vacuity are characteristic of all Cetacea; the very large pterygoid sinus is also characteristic of the Cetacea, and especially of the Ziphiinae, the modern representatives of an old group of Cetacea; the scapula is not comparable with that of any mammalia except the Cetacea; the exceedingly

thick vertebral epiphyses are especially
characteristic of such Cetacean genera as
Zalophus. These are some of the
other characters of ~~Zenopsis~~ Basilosaurus,
which in my opinion cannot be
ignored -

Pontoleon

Will it be an 8° or 4° prob. ?

See Cat Fossil man. Brit. Mus.

and to the absence of the transverse rugosities for
the insertion of the rectus abdominis muscles, which
were either ~~but~~ little developed or have become
obliterated.

Description of the type-skull. General Considerations

Inferior aspect - The basis of the skull presents a broad, rather feebly, concave surface bounded anteriorly and posteriorly by the posterior nares and occipital condyles, respectively, and laterally by the broad ^{occipital} mastoid processes. The concavity is deepest in the median line and grows shallower gradually to the mastoids. This even concavity is due in part to the almost complete obliteration of the tympanic bullae and basal foramina. The median longitudinal ridge, adjoining the foramen magnum, which is ~~present~~ characteristic of all sea-lion skulls, is present, but feebly developed, ~~while the transverse ridges for the insertion of the rectus abdominis muscles are not visible~~.

Anteriorly, the basal surface joins the roof of the posterior nares, which is rather deeply concave, and bounded by the thick ~~to~~ pterygoid walls. External to the ~~pterygoid~~ ^{pterygoid} walls are the very broad glenoid fossae of the squamosal, which ~~are~~ ^{resemble those of Eumetopias} somewhat directed backward.

The nares are not floored over by a posterior extension of the bony palate, as in Otaria. But are open far forward, as in Eumetopias & Zalophus & other Otariids.

Lateral aspect. - The lateral aspect of the cranium is characterized by the deep concavity of outline between the occipital condyles and occipital crest, which is only approximated in Callopterna and adult male skulls of Eumetopias. - This concavity is due to the strong backward development of the occipital crest midway between the vertex and base, and to the retreating outline of the ~~occipital~~ supraoccipital immediately above ^{the} condyle. - The appearance is perhaps partially due to distortion of the skull. - The lateral walls of the cranium are as strongly convex as in Zalophus, and from the appearance of the surfaces at the vertex, it ~~would~~ seems probable that a high sagittal crest was originally present as in ^{adult} Zalophus and Eumetopias. - The thick and strongly projecting free margin of the glenoid fossa, and the great antero-posterior breadth of the ~~meso~~ occipito-mastoid process are also ^{strikingly} characteristics of this aspect of the skull of Pontoleon.

Superior aspect. The upper surfaces of the skull of Pontoleon are so much broken as to render the interpretation of the contours difficult, but ~~the~~ it may be noted that the ^{marginal} occipital crest is evenly ~~concave~~ ^{rounded} as in Otarion, but as thick ^{as}, or thicker than, in adult male Eumetopias. The zygomatic process appear to have been very thick at the base, leaving a proportionally narrower space between their inner face and the wall of the cranium than in other sea-lion skulls.

Description of individual bones.

Occipital. - The supraoccipital is slightly convex immediately above the foramen magnum as in all sea-lion skulls, but ~~broadly~~ ^{evenly} concave higher over the general surface higher up, resembling the same same part in Eumetopias (adult male) rather than in Zalophus, Callopterna, etc., but without a clear indication of the strong median ridge found in the first-mentioned genus. The foramen magnum is round and the condyles without the sharp internal border found in other genera, but this is doubtless due to a wearing away of these edges in the fossil.

The paroccipital processes are broader and more transverse than in the recent genera, ~~but~~ ^{though} ~~resembling~~ ^{approaching to} those of Eumetopias in this respect.

They ~~processes~~ have not, however, more than a slight indication of the prominent rounded ridge occupying the distal ~~and posterior~~ Their posterior and distal surface in that genus, and in that respect more resemble those of Otarca.

It has already been remarked that the under surface of the basioccipital ~~of Poultonia~~ ^{is} broad & ^{near} flat, in contrast with that of existing genera. Due in part to the feeble development of the median ridge immediately anterior to the foramen magnum, and in part to the obliteration of the foramen lacerum posterius. On the right side, the latter foramen can be traced, but is clogged by a piece of dense bone which must belong elsewhere. The upper surface of the basioccipital within the brain-case, on this side, has been filled with plaster, but on the left side the outlines of the foramen lacerum posterius are traceable. The ^{median} depression on the upper surface* is about

* Possibly a vascular recess, according to Murie

as deep as in Otarca; more so than in Eustrophia and much less than in Zalophus and Callotaria * Sphenot. The superior surface of the ^{body of the} Sphenot is in the same general plane with the basioccipital. Depressions marking the position of the

The lateral margins of the posterior clinoid plate are not emarginate as in ~~most~~ ^{many} ~~of these~~ genera, but convex, but this appearance may be in part due to the imperfection of these edges -

foramen lacernum medium are conspicuous a little posterior to the insertion of the pterygoids. On the upper surface of the basisphenoid ~~and pterygoid~~, the sella turcica is marked by a depression less deep than in Eumetopias and ~~about as in Otaria or Zalophus~~. ~~Anterior to this is bounded posteriorly by the posterior clinoid plate,~~ which is broadly triangular in outline and rounded in front where the posterior clinoid processes were given off. These processes are lacking in the skull, and the extent of their development cannot be determined. More anteriorly is the elongated processus olivarius, and on each side ^{very distinct} grooves leading backward from the foramen lacernum anterior to the ^{foramina} ~~for~~ ^{ovale}, ~~lacernum medium~~ ^{posterior}. These are disposed in a manner closely similar to the same parts in Eumetopias. The foramen ovale is obliterated, but a rather deep depression marks its location on the left side. On the same side, a conspicuous depression indicates the position of the ^{foramen} ~~lacernum~~ ^{medium} and immediately behind which is a triangular rough mass, which is obviously the anterior end of the petrous ^{portion of the temporal}, similar in shape to the same bone in Eumetopias, but broader. This mass is followed posteriorly by a deep irregular cavity, ~~corresponding~~ ^{probably} ~~part~~ representing in part the foramen ^{lacernum} ~~posterior~~ and in part the vacancy left by the

~~Carnegie Institution of Washington Expedition to China~~

absence of the posterior part of the petrous portion of the Temporal -

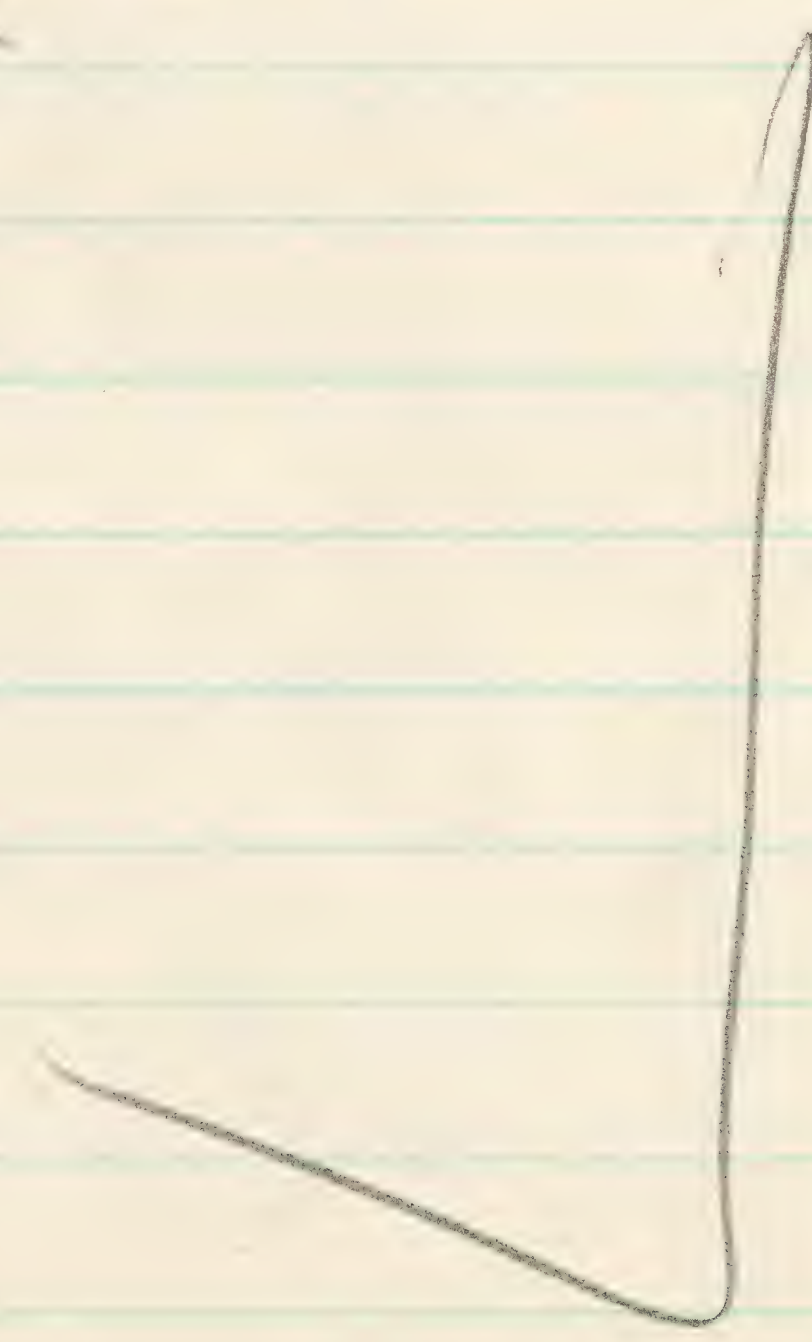
Antenally, the sphenoid is broken off at the suture between ~~the~~ presphenoid and orbito-sphenoid, which remains open late in the Otariidae -

Temporal. - The temporal is chiefly remarkable for the great antero-posterior ~~the~~ breadth and strong ~~distal~~ distal development of the glenoid fossa. These ~~latter~~ characteristics are not shared by existing genera of Otariidae, in all of which the fossa is narrower distally, though least so in Otaria. In spite of the large development of the glenoid fossa ^{just} mentioned, the zygomatic process is so thick at the root that the space between its ramus and the wall of the cranium is much less ~~than~~ ^{both} relatively ~~than in~~ and absolutely ~~than in~~ ^{of the} any existing Otariidae. ~~including~~ ^{and considerably less absolute than in} Eumetopias ~~subata~~, though ~~though~~ ^{though} skulls of that species are a ~~few~~ ^{few} smaller than Phoca. As the zygomatic processes are broken off close to the root, nothing can be determined definitely as to the ^{original} form of their ~~free~~ ^{distal} ends -

The tympanics, as already mentioned, are so much ~~broken~~ crushed and abraded that their original form cannot be determined, though they were ~~probably~~ as flat as, or flatter than, in Zalophus and Arctoccephalus. The paroccipital and mastoid elements of the occipitomastoid process cannot be distinguished, but the ~~masto~~ inferior surface

of the mastoid is much flatter and broader antero-posteriorly than in the existing sections.

Parietals and frontals - The wall of the cranium on the left side is present ^{to a point a little farther} ~~as far forward as~~ forward than the line of the ~~of~~ anterior margin of the glenoid fossa - It therefore probably included a portion of the posterior end of the frontal, ^{though} ~~but~~ the suture is not traceable - The general surface is somewhat concave superiorly, as in Eumetopias, and is narrowed anteriorly as in that genus - ~~It presents the form~~
In Zalophus and other Geck genera, except Eumetopias, the brain-case is ~~rather~~ more oblong or quadrate in form, ~~and more evenly convex superiorly~~. Due to the ~~bulging out of the~~ stronger development of the anterior cranial fossa, while in Otaria a ^{distinct} post-frontal process develops ~~at the~~ in this region - A strong sagittal crest probably existed in Poulsten as in Eumetopias, but it is wanting in the fossil skull -



~~and broader, antero-posteriorly~~

~~of the mastoid is much flatter than in the existing~~
~~sections.~~

Palatines - The palatal region is remarkable for the abbreviation of the bony palate, the ~~distance~~ ^{length} from the hind margin of the latter to the posterior margin of the pterygoid immediately above the hamular process nearly equaling the ~~distance~~ ^{length} from the latter point to the occipital condyles. In existing genera the former ~~distance~~ ^{length} is about half the latter, except in Otaria, in which ~~the bony~~ it is hardly more than a fourth. The skull ^{of Pontoleon} is broken ^{opposite the} the posterior end of the bony palate, but ~~enough re-~~ ^{of the latter} ~~main~~ ^{remains} to show ~~the~~ a small portion of the latter of immediately posterior end remains on the left side.

The vertical plates of the palatines ^{are} remarkably bulbous ^{externally} at the point meeting the suture with the ^{and alisphenoids} pterygoids.

Below this swelling, a quite deep groove runs parallel with the inferior free margin of the wall of the nares - This ^{groove} is not present in Otaria, but ~~mark~~ is developed in a minor degree in other Zalophus Arctcephalus and other existing genera.

Pterygoids - The suture ~~of the~~ between the pterygoid and palatine is obliterated. The posterior free ^{of the former} margin is emarginate but much more nearly vertical than in existing genera, except Otaria. The hamular processes appear to have been well-

developed, but their original form is uncertain. This is a point of little importance on account of the large individual variation in the form of the process in the several genera of Otariidae. * The ^{walls of the} alisphenoid canal

* In the skull of Pontoleon a fragment of bone has been placed at the end of the right pterygoid, but it is not certain that it belongs in this position. The free margin of the ^{right} pterygoid ~~on the right~~ has been too much chiselled out.

has been chiselled away, or were already broken off when the skull was found -

Jossae give cranial cavity. - Compared with Emmetopias, the anterior cranial fossa is remarkable inferiorly for its extension ~~posterior~~ ^{also for the} posteriorly - externally; ~~and~~ ^{also for the} oblique posterior boundary, due to ~~the~~ ^a thickening of the internal parietal ridge. The middle fossa is restricted externally from the same cause.

The shape of the posterior fossa is not determinable exactly, on account of defects in the skull, but it appears to have extended outward less than in Emmetopias.

The family Otariidae is dismissed with but a word or two by Zittel (Paleontologie, vol. 4, Vertebrata & Mammalia, 1891-1893) and no mention of fossil forms is made such as in Reed's Mammalia (1902) -

Described species of fossil sea-lions

Fossil remains of sea-lions are extremely rare, and but few species have been established - ^{These fossil species supposed to be made to} known prior to 1880 were reviewed by Dr. Allen in his History of North American Pinnipeds published in that year - One or two later ones are included in Traussart's Catalogue Mammaliaire, Supplement, 1904 - ^{names} The ~~list~~ of these species and the material on which they were based is as follows: -

* See Allen, J. A. - History of North American Pinnipeds, 1880, p. 217

1. Otaria ? prisca Gervais, 1850-55.

Zool. & Paleontol. franc., 1850-55, 276, pl. 8, fig. 8

"Based on a tooth." Van Beneden has since determined it to be referable to Squalodon - (Allen)

2. Otaria oudriana Delfortrie, 1872.

3. Otaria leclercii Delfortrie, 1872

Based on an outer lower incisor from the same locality.

Act. Soc. Linn. Bordeaux, 28, 1872, livr. 4.

Van Beneden contended that these teeth ~~probably~~ belonged to his genus Palaeophoca, a

(Based on a tooth from the bone breccia of Saint-Médard-en-Jalle, near Bordeaux)

fossil
 a phocid allied to Monachus as Dr Allen con-
 curred in the opinion that they were not otarine.

4. Mesotarsia ambigua Van Beneden. 1877.
 B. Ann. ~~des~~ mus. roy. d'Hist. nat. Belg.,
 1, 1877, 56, pl. 1.

Based on the bones of the greater part of the
 skeleton and numerous teeth, skull wanting.
 Assigned by Allen to the Phocidae, as
 probably allied to Cystophora as Macrochirus.

5. Otaria jubata (foss.) Ameghino. 1889.
^{man. post. argent. 1889, 343}

"Sus restos se encuentran con frecuen-
 cia en las formaciones marinas post-pampeanas."

"Alrededores de la Plata, Punta de Lara,
 Quilmes, etc."

"Piso querandino de la formacion cuat-
 ernaria (cuaternario inferior)."

6. Arctocephalus williamsi Mac Coy

Prodrom. Palaeontol. Victoria decade 5, 1879, 7,
 pls. 41 + 44.

Pliocene

Based on an "old male skull".

Considered by Allen (Permian, p. 770) as not
 differing materially from female of Zalophus
lobatus (Gray)

7. Arctophoca fischeri Ameghino. 1886.

Bol. Acad. Nat. Argentina, Cordoba, 9, 1886, 214;

Act. Acad. Nat. Argentina, Cordoba, 6, 1889, 342

(= Otaria fischeri H. Gen. & Amegh., Mam. foss. de l' Amer. Sud, 1880, 223 - nomen nudum)

Oligocene

a fragment of
Based on the horizontal ramus of a mandible with the alveoli of the three last molars, from "las barrancas del Parana".

"Piso patagonico de la formacion patagonica (Oligoceno superior)."

Resembles Arctophoca falklandica (= Arctocephalus australis Zimm.), but is smaller. (Arctophoca Peters is considered by J.A. Allen a synonym of Arctocephalus F. Cuv.) -

8. Arctocephalus forsteri (foss.) Péron. 1816 -

Voyage Terres Australes, 1816, 2, 37 -

Troussart cites this species from Péron*

* By a typographical error, written Lesson -

Pleistocene of New Zealand -

Whether any or all of the various nominal species of fossil sea-lions hitherto described are valid is really of very little ^{importance} in the present connection, as, ~~the, are based~~ with one exception, they are based on bones or teeth, ~~as~~ and owing to this circumstance could not be correlated with Pontoleon. The exception relates to Arctocephalus williamsi McCoy, which was founded on an "old male skull" according to the original describer, but which, as we have seen is considered by Dr. J. A. Allen as not differing ^{materially} from ^{a female} the skull of Zalophus lobatus, a recent species. After an examination of the original figures, I concur in this opinion.

General remarks.

any or all of

Whether the various nominal species of fossil sea-lions ~~above mentioned~~ ^{any or all of} hitherto described are valid is really of very little importance in the present connection as they are ~~all~~ ^{all} based on bones ~~and~~ or teeth in every instance, no skulls having been found. ~~They could not on this~~ Owing to this circumstance they could not be correlated with Pontoleon.

It is an interesting fact, brought out in the foregoing description, that Pontoleon is closely allied to Eumetopias ^{tibata}, a living species of the same region - That it was the progenitor of Eumetopias is probable, though such an opinion cannot be assented to with much positiveness on the basis of ^{the single} ~~such~~ ^{now available} ~~material~~ ^{material} - The ~~material~~ is skull proofs, however, that the sea-lions ~~were~~ existed in the North Pacific region in Miocene times. ~~They~~ ^{They} either originated there or if they were derived from some other region, must have entered the fauna of the ~~region~~ North Pacific at a still earlier epoch -

PRINCETON UNIVERSITY
DEPARTMENT OF PALÆONTOLOGY

Princeton coll

recd Oct 21st

PRINCETON, N. J., Oct. 21st 1908

Dear Mr. True:

I shall be very glad to have you publish your account of the Patagonian
Cetacean in the Smithsonian journal, for I am at present entirely without funds for
the purpose. Should the Smithsonian people decline to ~~do so~~ take the article, no
doubt the American Philosophical Society would be glad to have it.

Another cetacean skull turned up among the Patagonian material; was that
sent to you?

Very sincerely Yours

W. B. Scott.



STATE OF VERMONT

OFFICE OF STATE GEOLOGIST

foss. whales

BURLINGTON, VT. May 18th. 1908.

Dear ~~D~~r. True.

All the photos that I left with you
are from the Halifax specimen. I enclose some of the periotic
of our specimen. I have look~~e~~d over the letters you so
very kindly lent me with great interest.
You did me a greater favor than perhaps you thought when
you called my attention to the Ottawa specimens for I
had not known of them and might easily have overlooked
them.

I shall be much interested to know what you think of
the resemblance of the periotics severally to Delphinapterus
and Monodon.

Very truly

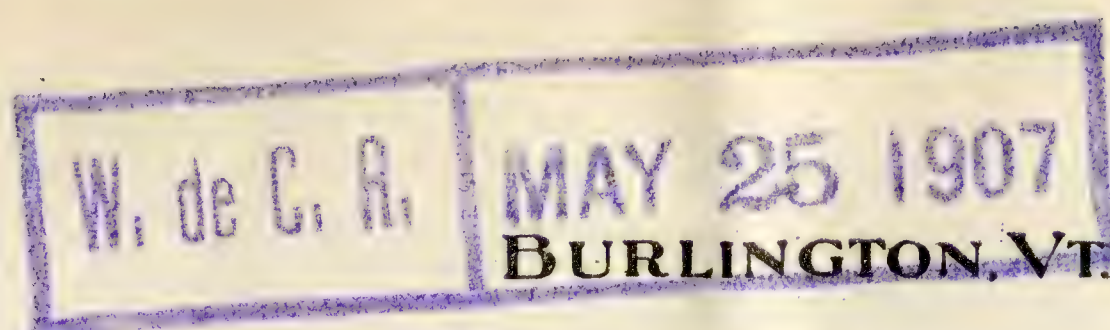
G. H. Perkins



STATE OF VERMONT

OFFICE OF STATE GEOLOGIST

W. C. Ravenel



May 25th. 1907.

Dr. F. W. True,

Dear Sir:

I have not sent on any bill yet because I cannot get it from the photographer. I wrote to him some weeks ago and last week went up and saw him and urged him to send me his bill, but have not heard from him yet. He also promised to send you the negatives. The only bill there is is this of the photographer. I was only too glad to do what I did to secure the pictures and if, as I understand the matter, I am free to use them for illustrations in my state reports, I am content that you should have the negatives. Pardon my negligence in failing to acknowledge the receipt of the prints you sent. I supposed that I had notified you of their arrival.

I will write to Mr. Wilkinson at once and see if the matter cannot be settled.

Yours truly

G. H. Perkins

SMITHSONIAN INSTITUTION.
UNITED STATES NATIONAL MUSEUM.

Plesiocetus

Currieri

capellum

goropis

}

= Balaenoptera

godei Hydenker

+ Portis

Cetotherium - like Plesiocetus

but occipital + parietal not-
nearly shorter, humerus shorter
than fore-arm bones -

~~presumably~~
Grandaeus

The additional speci-
mens (basal type caudals)

Menhens & Pope in

1869 consist of

1st indiv.

One lumbar

2nd indiv.

7 cervicals

9 dorsals

7 lumbar

24 ribs

1 manubrium sterni

{ There are notably 14
Cerv. fig. in 1890 }

P.

Phocodon

AMERICAN MUSEUM OF NATURAL HISTORY,

77TH STREET AND EIGHTH AVENUE.

NEW YORK, May 8, 1905.

Dr. F. W. True,

Smithsonian Institution, Washington, D. C.

My Dear Dr. True:

Replying to your letter of May 4, I would say that we can find no trace of the specimen of Phocodon holmesii, figured on the enclosed. We do find, however, a fragment of a skull of this species, and would be quite willing to send it to you for your examination if you so desire.

Many thanks for your memorandum in regard to Xiphius. I have written to Ward's Natural Science Establishment in Rochester and asked their price.

Very truly yours,

W. C. Cresson

Director.

July 23, 1910.

Dr. R. Rathbun,

Assistant Secretary.

Dear Sir:-

I beg to report that in accordance with your approval of detail, I visited Chesapeake Beach, Md., on June 29 and 30, for the purpose of collecting specimens of fossil cetaceans. I was unable to go earlier on account of press of work. The conditions were unfavorable on the days mentioned, as the weather was excessively hot, and a breeze kept the water agitated, so that objects could not readily be seen in it. Furthermore, the fall in the tide was very slight. As the fossil bones are carried down with blocks of marl from the cliffs into the water and washed out by the action of the waves, many interesting pieces are found in the water, or between high and low water marks. A low tide and still water are most favorable for collecting. In spite of unfavorable conditions, I obtained a considerable number of vertebrae and other pieces, and made some observations on the condition of the cliffs, which have changed materially since last fall. These changes bring to light skulls and other remains imbedded in the cliffs, but I was unable to discover any on this occasion.

Yours respectfully,

Head Curator of Biology.

United States National Museum.

MEMORANDUM.

Fossil. Celace.

7279 } Zeuglodon Virginia
 7280 } vertebrae 8 spec.

~~Fossil~~

7395. Fossil bones } Near Benedict
 7396 Celacean, ear bones } Charles Co. Md.
 7397 Aelobates, teeth } O. N. Bryan

7402 } Mastodon teeth Marl beds of
 3 } Maryland - St Mary's Co.
 4 }
 Md - 7403 Found in dyes
 a water race between Patuxent
 River & St. Clements Bay

United States National Museum.

MEMORANDUM.

8206 - 8210 -

Celacean ribs & vertebrae

Virginia Moccasin

8769 - Celacean Vertebra
Cliffs of Calvert

16617 - whale vertebra

Mafford Cliffs, Md

(acc. 11046) H. J. Harmon

1881

United States National Museum.

MEMORANDUM.

7409 - 7413 Mastodon vertebrae
Maryland marl beds

7686 - Juglodon vertebra
Virginia

7689 Cetacean M^o or Va
Miocene - Vertebra

7694 - Cetacean rib
Calvert Co. M^o
Dr. Horsford

Book 244 -

8

Book 1 -

Book 8

Book 15 -

fossil whales

The Charleston Museum
UNDER THE AUSPICES OF THE COLLEGE OF CHARLESTON
PAUL M. REA, DIRECTOR.

CHARLESTON, S. C. October 18, 1909.

Dr. F. W. True,
U. S. National Museum,
Washington, D. C.

My dear Dr. True:

In reply to your letter of October 16th I would say that Prof. Holmes' collection was removed from the Charleston Museum at the time when Prof. Holmes terminated his connection with the institution. A part of the collection is now in the American Museum of Natural History in New York and I understand that more of it is in Philadelphia. At any rate we have been unable to identify any specimens as being those figured in his Pleiocene and Post-Pleiocene. ^{*Fossils*} If I later come across any teeth of this character I shall bear you in mind.

I am still accumulating Xiphioid whale heads and now have seven as well as three or four more which I have located in town but not yet acquired for the Museum. Sometime I think it will be of interest to you to examine this collection.

Allow me to take this opportunity of thanking you for your paper on Fossil Cetaceans from Santa Cruz which I recently received and read with interest.

With kindest regards, I am,

Very sincerely yours,

P. M. Rea
Director.

PMR/W

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

MEMORANDUM

Jan. 23. 1911.

To Dr. R. Rathbun
Assistant Secretary,

R.R. JAN 24 1911

I beg to request permission
to publish the enclosed note, on an
important fossil cetacean belonging to
the National Museum, in the Pro-
ceedings of the Biological Society of
Washington or in Science -

Yours respectfully
J. W. Lane

Approved

R. Rathbun

Acting Secretary

DISCOVERY OF A FOSSIL DELPHINOID CETACEAN, WITH TUBERCULATE
TEETH.

Among the fossil remains of cetaceans obtained a short time since by the National Museum from the Miocene formation of Maryland, is a nearly complete skeleton of a porpoise, which, on examination, proves to be a delphinoid form, that is, a species which may be referred to the family Delphinidae, but has tuberculate teeth. This important specimen enables us to solve, in part, the hitherto unsolved problem of the origin of the typical porpoises of today. It now appears unquestionable that they were derived from forms having teeth with tuberculate or serrate crowns, rugose enamel, and anterior and posterior longitudinal ridges. This form of teeth is indicated in the recent delphinoid genus Steno, in which the crowns have rugose enamel, and, as I have lately discovered, traces of anterior and posterior ridges.

The beak in the fossil species is short and broad, the symphysis of the mandible moderately long, as in Steno, the supraorbital plates of the frontal large, the cervical vertebrae all free, the atlas with a single transverse process, the thoracic, lumbar, and caudal vertebrae short, the transverse processes of the lumbar long, narrow, and not expanded at the extremity.

It is probable that the earlier ancestral forms of the Delphinidae were allied to Squalodon and that the families Delphinidae and Squalodontidae are offshoots from a common stem. Nevertheless,

as so little is known of the vertebral column and limbs of the squalodonts, the hypothesis still appears tenable that the Delphinidae originated from a stock distinct from the former, but having somewhat similar tuberculate teeth.

The teeth of the fossil species have been compared with the type-teeth of Delphinodon mento and D. wymani, with the result that it can be referred with certainty to that genus, and probably is identical with the latter species. The genus Delphinodon, therefore, which has hitherto been regarded as belonging to the Squalodontidae, is now to be transferred to the family Delphinidae.

A full description of the fossil skeleton, with illustrations, will be published by the National Museum at an early date.

Frederick W. True

Washington, D. C., Jan. 23, 1911.

THE CHARLESTON MUSEUM

NOV 6 1908

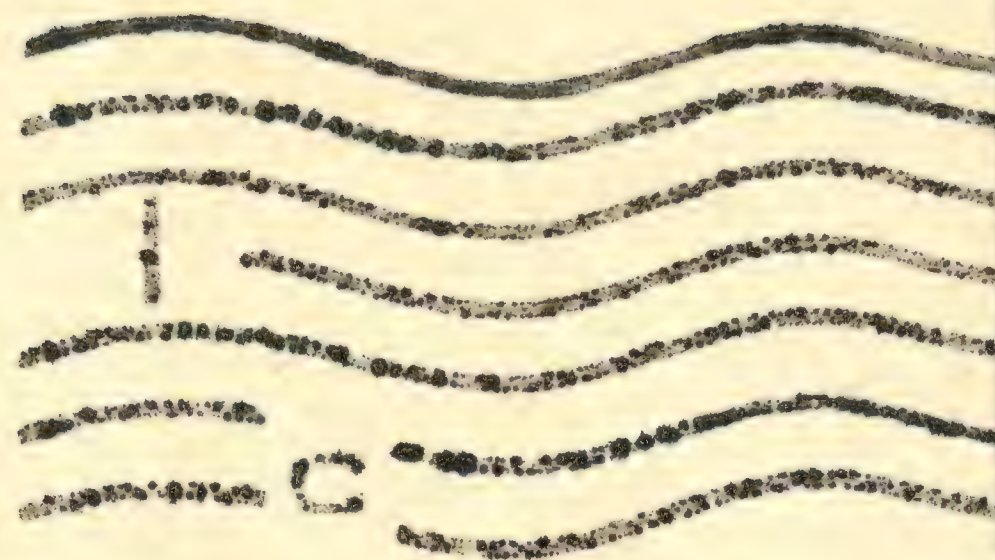
My dear Dr. True

Please accept my Thanks
for reprint of your paper on the
classification of Cetacea just received.

Very truly yours

P. Mearns

THE SPACE BELOW MAY BE USED FOR CORRESPONDENCE.



POSTAL CARD

THE SPACE BELOW IS FOR THE ADDRESS ONLY.

Dr. F. W. True,
U. S. Nat. Museum,
Washington
D. C.

CHARLESTON, S. C. Feb. 8, 1908.

THE CHARLESTON MUSEUM ACKNOWLEDGES
THE RECEIPT OF:

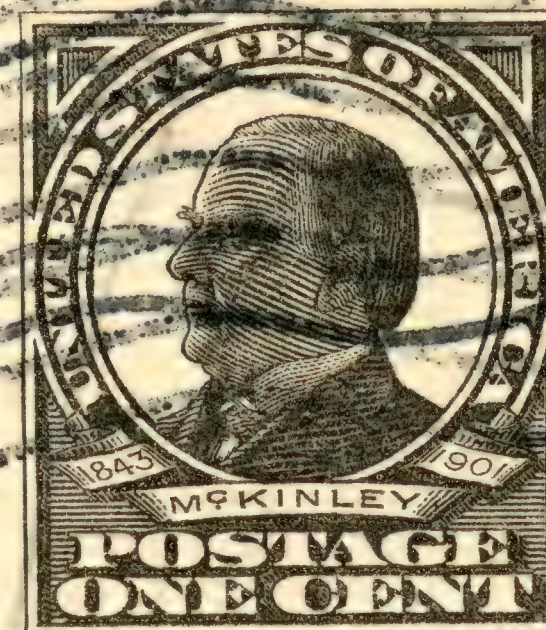
Reprint from Smith Misc. Coll., V. 5-0, p. 4.
Occurrence of ... fossil Cetaceans ... in the
U.S. and tenders thanks for the same

PAUL M. REA, DIRECTOR



POSTAL CARD

THE SPACE BELOW IS FOR THE ADDRESS ONLY.



Dr. Frederick W. True
U.S. National Museum
Washington
D.C.

CHARLESTON, S. C.

OCT 1

1908

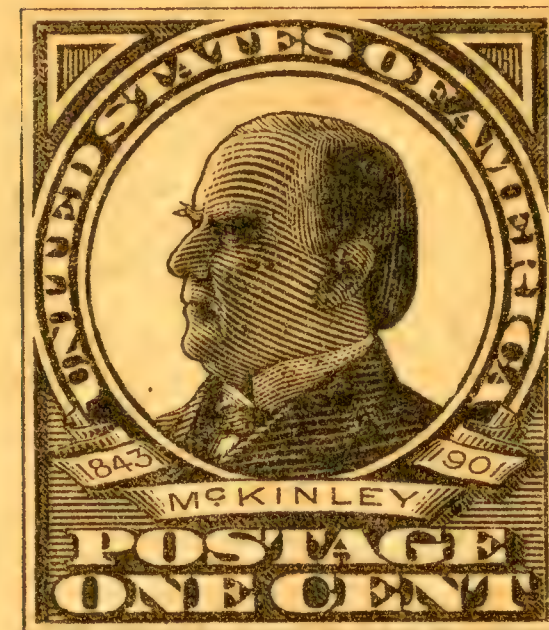
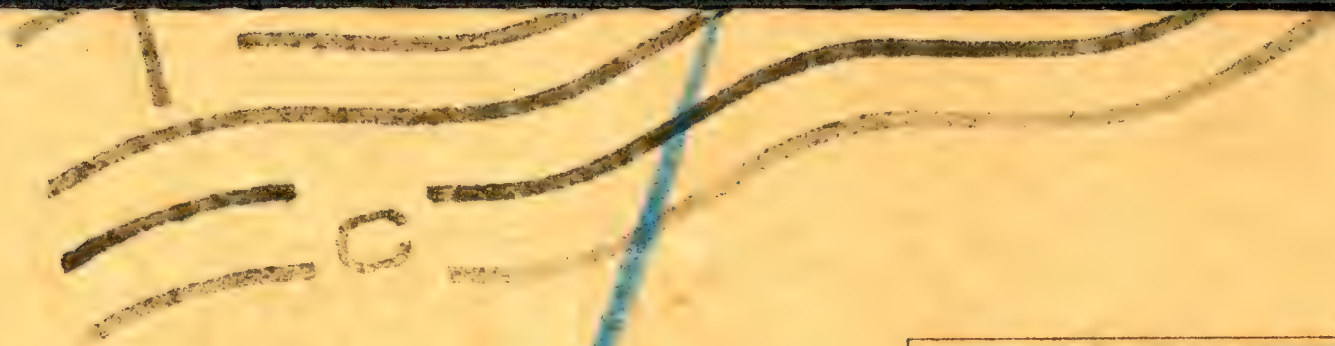
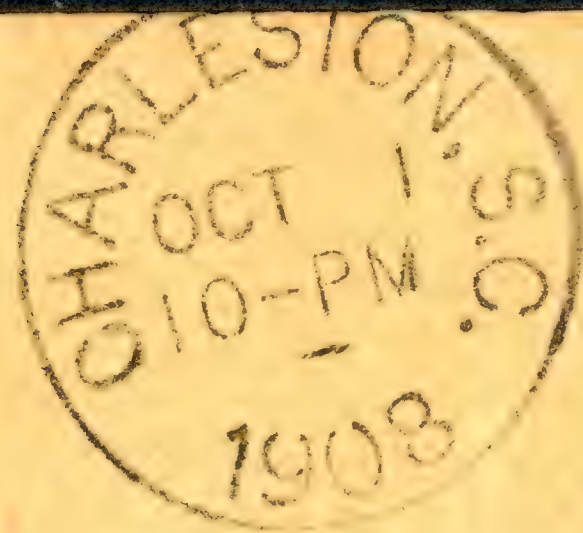
THE ^{undersigned} ~~CHARLESTON~~ MUSEUM ACKNOWLEDGES

THE RECEIPT OF:

The fossil cetacean, *Dorudon serratus* Gibbs

Many Thanks. — We now have
seven xiphioid heads here.

PAUL M. REA, DIRECTOR



POSTAL CARD

THE SPACE BELOW IS FOR THE ADDRESS ONLY.

Dr. F. W. True,
U.S. National Museum,
Washington,
D.C.

SMITHSONIAN INSTITUTION.
UNITED STATES NATIONAL MUSEUM.

E. A. Richards

U.S. Consular Agent,

Kingston, St. Vincent

W. Brit. West Indies

PRINCETON UNIVERSITY

DEPARTMENT OF
PALÆONTOLOGY

PRINCETON, NEW JERSEY

May 6th 1911

AS

Dear Dr. True:

Just before I left for Panama on April 12th, I ordered sent to you the newly discovered Cetacean from the Patagonian beds, comprising part of the mandible & the tympanic. No doubt, you were puzzled to account for its unexplained appearance; I intended to write to you, but was prevented from doing ^{so} by my hurried departure. Now that I am home again, I write to ask whether you can tell me what the bone is, & shall be obliged for any information concerning it. Please return the specimen to me, when you have quite finished any study that you may wish to make of it.

Very Sincerely Yours

W.B. Scott.

PRINCETON UNIVERSITY

DEPARTMENT OF
PALÆONTOLOGY

PRINCETON, NEW JERSEY

Jan. 24th 1911

Dear Mr. True:

When you last wrote to me, kindly promising to get up an account of the Cetacea of the Patagonian beds, I did not reply, because I could not then fit any time when the Ms. would be needed. Now, however, things have so far cleared up that I am able to see the end of the series & I shall be glad to have your paper as soon as you can conveniently be prepare it.

I hope you can give us something for the meeting of the American Philosophical Society in April & will oblige me by sending me a title for the programme.

Very Sincerely Yours

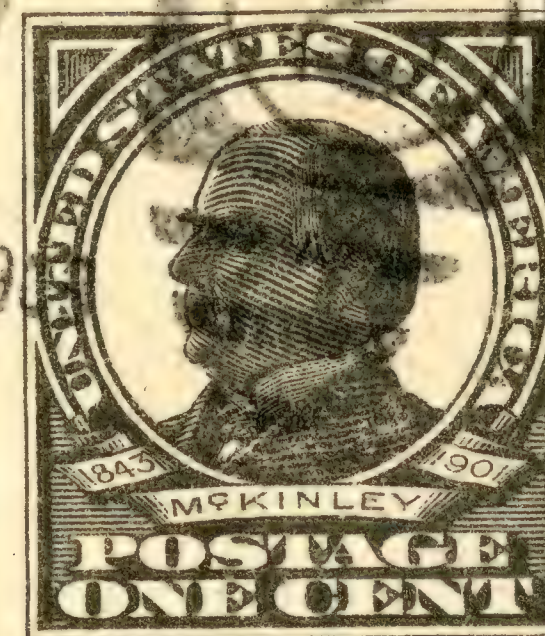
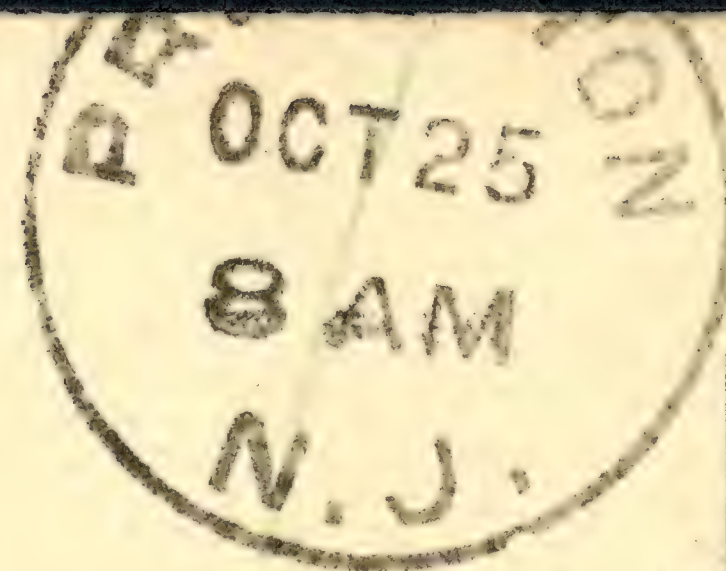
N.B. Sells

Princeton University,
October 23^d/09.

My dear Dr. Tuck:-

Please accept my thanks
for the papers on cetaceans recently recd.
I have been so busy with moving into our new
quarters that I have not had the chance to read
any of them yet.

Yours very truly
Wm. H. Dallin



POSTAL CARD

THE SPACE BELOW IS FOR THE ADDRESS ONLY.

Dr. F. H. True,
United States National Museum,
Washington,
D. C.

München, 17. 10. 1908

Schönfeldstraße 26 III

Sehr geehrter Herr Professor!

Den besten Dank für Ihre wichtige Abhandlung über Dorudon, die mich leider zu spät überzeugt, daß ich Dorudon serratus und Engledon brachypodius minor, wenn auch vielleicht nicht als Genera, so doch als Arten hätte auseinander halten sollen. Ich habe eben die amerikanischen Archaeoceti nur nebenbei berücksichtigt, da ich ohne Studium der Originale eine Klärung ihres Ranges und ihrer Stellung für unmöglich hatte. — Ich erlaubte mir, im September durch Vermittlung der Smithsonian Institution Ihnen meine 2 Arbeiten über Archaeoceti zu senden, hoffentlich sind sie angekommen und wird ein so ausgezeichneter Kenner wie Sie dadurch veranlaßt, eine gründliche Revision aller amerikanischen Archaeoceti vorzunehmen. Hochachtungsvoll Dr. Ernst Stromer.

Königreich Bayern
Postkarte



An Herrn Professor F. W. True

in Washington D. C.

United States National Museum

THE ACADEMY OF NATURAL SCIENCES
OF
PHILADELPHIA

LOGAN SQUARE

file for. what

Feb 11/08

Ans'd Feb. 17. 08.
forwarding ms. & ill.

My dear Dr. Fane

The Academy I am
sure will be very glad to publish
your paper. I am on the publica-
tion Committee & Dr. Nolan the
editor agrees with me so if you
will send it to me at once I
think it will be in the printer's
hands very shortly.

Yours truly

William Stone

YALE UNIVERSITY MUSEUM

Geological Department

NEW HAVEN, CONNECTICUT

July 8, 1908.

Dr. Frederick W. True,

Head Curator, Department *B*iology,

U. S. National Museum,

Washington, D. C.

My dear Dr. True:

I want to thank you most heartily for the bunch of vertebrate papers from you pen recently received. As we are doing considerable paleontological work here at Yale these pamphlets will be of great service to us.

Hoping you are well, I am

Yours truly,

CS/00

Charles Schuchert.

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

MEMORANDUM

February 14, 1908.

To Dr. True:

I am directed to inform you that the Secretary of the Smithsonian Institution has approved your request, under date of February 12th, for permission to publish in the Proceedings of the Academy of Natural Sciences of Philadelphia your paper entitled "Remarks on the fossil cetacean Rhabdosteus latiradix Cope".

Very respectfully yours,

J. C. Bryant
Actg.

CORRESPONDENCE & DOCUMENTS.

Dr. F. W. True,

Head Curator, Department of Biology,

U. S. National Museum.

PRINCETON, N. J., Feb. 11th 1908

Dear Mr. Ince =

I am very glad that you are able & willing to give us a paper for the general meeting of the Philosophical Society. The lantern-question may be kept open until the preparation of the final programme at early in April, but I hope you will conclude to make use of the slides, as I think these always add to the interest & attractiveness of any paper that admits of them.

Very sincerely Yours

W. B. Scott.

~~Intro~~

The classification of the
Celaena, with special reference
to extinct forms —

20 min.

PRINCETON UNIVERSITY
DEPARTMENT OF PALÆONTOLOGY

PRINCETON, N. J.,

Jan. 27th 1908

Ans Jan 31

Dear Mr. True =

On behalf of the committee on arrangements, I would cordially invite
you to present a paper at the general meeting of the American Philosophical
Society in April next.

Hoping for an early & affirmative reply, I am

Very sincerely, Yours

W.B. Sedgwick

AMERICAN MUSEUM OF NATURAL HISTORY

SEVENTY-SEVENTH STREET AND CENTRAL PARK WEST

NEW YORK, March 26, 1910

PLEASE ADDRESS THE
LIBRARY

Aut Apr 2 1910

Frederick W. True,
National Museum,
Washington, D. C.

My Dear Dr. True:-

We sent you yesterday
twenty-five (25) copies of your recent paper
for your personal use and we will mail for
you at our expense one hundred (100) copies
to addresses which you deem fit to submit.

Awaiting your list, I am,

Very truly yours,

R. W. Lowe

Curator of Books & Publications.

R.

Chesapeake Beach W
Plum Pt. Md. (Calvert
Cliffs) -

Apr 9, 1905

91 - 342 + 1000.
resend for specimen at house

Jan. 22.07

D. R. Rathbun

Assistant Secy.

My

Dear Dr. Rathbun:-

As I wrote you last year, I should like to spend a little time this winter and next spring in examining the types of American fossil cetaceans in the Museums of Johns Hopkins University, and the Woman's College, Baltimore, and the Academy of Natural Sciences, Philadelphia - It would be most convenient to go to Baltimore first, being perhaps next Saturday or the following week. I would propose ~~to~~ to go on Saturdays only, as the expense ^{would be} ~~is~~ ^{than on other days,} less, amounting to about \$1.50 ^{or} each trip (\$1.25 for round trip ticket & 25 cts for ^{doubtless} lunch) - ~~I presume several trips would be necessary, as I understand some of the specimens at least are stored away, and I should probably have to help to sort them out, spy out the right ones and get them put where they ^{could} be seen studied.~~ It is not possible, of course, to say in advance ~~to~~ to what extent the various specimens ^{I am unable to say in} ~~would prove~~ ^{advance} exactly how much time would be required ~~to~~ in all

for profitable study of the material in Baltimore, but I do not think it would be very much, and probably a few trips would suffice -

The types in Philadelphia are much more numerous, and I presume a couple of weeks would be ~~required~~^{needed} to acquire an intimate knowledge of them -

I should prefer however, to put off going there until April, when the light and weather are better. The expense in that connection would probably be about \$40 or \$50.

Yours very sincerely

SMITHSONIAN INSTITUTION.

UNITED STATES NATIONAL MUSEUM.

Priscodectophorus
grandaeus

Shuloh, Cumberland Co.

P. harlani

Mullica Hill

Gloucester Co.

Squalodon atlanticus

Shuloh

Helosphyx usaeus

Shuloh

SMITHSONIAN INSTITUTION.
UNITED STATES NATIONAL MUSEUM.

Zarhachis velox

Near Shuloh

"Marl pits of Reuben
Ayres"

SMITHSONIAN INSTITUTION.

UNITED STATES NATIONAL MUSEUM.

*Mesolepas**PPS*1873. pl.
4. fig 1.*Reynolds* / 896. 145

pl. 12. fig 5

Pachysetus

Bull. Acad Belg.

6, 1883, 27

Cetotherium megaloplygum, Cope

Cove Pt. - Cranium

Lophocetus calvertensis (Harlan)

Calvert Cliffs - Cranium

Paracetus mediatlanticus Cope

Drum Pt. - Cranium

Proserpinaca ? crassangula Case

3/4 mi. N. of Governor's Run

Crassia

SMITHSONIAN INSTITUTION.

UNITED STATES NATIONAL MUSEUM.

Dr. True
You will not
my do not find your
whale. will report
later of it run up.

Yrs

Wm

Feb 14

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

MEMORANDUM

To Dr. Merrill :-

Jan. 29, 1906.

Leidy stated in 1876 that the type
of his fossil ziphioid whale Prororhynchus
macrops was in the "Smithsonian collection
of the Government Department of the Centen-
nial Exposition" - Do you know whether
anything has been seen of it here? It
is a beak $2\frac{1}{2}$ ft. long & with "the
density of ivory".

J. W. T. True

Can not at present locate the
specimen. J. W. T. True

"Barita powder

Types in Phila. Acad.

^M Balaena palaearctica Ledy (Rheguopsis)

Frag. of lower jaw, a dorsal & zygomatic

^M B. prusea Ldy (Siphonocetus)

Frag. of lower jaw & a caudal

^M Balaenoptera pusillata (Cetotherium)

Phosphate

Frag. of a ramus

Belonoziphius prorops Ledy. (Mesoplodon) Here?

Phosphate

Beak

Ceterhinops longirostris Ledy (Squalodon?)

Frag. of skull around blowholes

Phosphate

Chonoziphius liops Ly.

Beak.

Here?

^{do} C. trachops Ly.

Beak -

Here?

^{P?} Colophonodon holmesii Ly. (Squalodon)

Several teeth

^M Delphinapterus gabbii Cope. (Piscodelphinus)

a Caudal

^M D. harknessi Cope (Piscodelphinus)

2 lumbar

^M D. lacertosus Cope. (Piscodelphinus)

2 lumbar, abnormal. (Other specimens)

^M D. ruschenbergi Cope. (Piscodelphinus?)

a caudal & a lumbar

^M D. tyrannus Cope. (Cetotherium?)

1 dorsal & 3 lumbar

Here?

^M Delphinus calvertensis Harlan. (Lophocetus)

skull.

Here?

- M Delphinus couradi Ly (Ixacanthus)
Centrum of a lumbar (others)
- Phos. Eboroziphus coelops Ly.
A beak. Here?
- M Eschrichtius cephalus Cope. (Cetotherium)
Considerable part of a skeleton)
- E. davidsonii Cope. (Cetotherium)
Prox. portion of left ramus
- M E. leptocentrus Cope. (Cetotherium)
A 1st cervical
- M E. polypterus Cope. (Cetotherium)
Prop. $\frac{2}{5}$ of a left ramus
- E. Hemicaulodon effodius Cope.
Frag. of a tooth Here?
- M Ixacanthus coelospoudylus Cope,
Some vertebrae ad. & jr.
- M Macrophoca atlantica Ly. (Squalodon)
Three molars
- M Megaptera expansa Cope (Diplonocetus)
1. Numerous vert. from Hos. coll.
2. Several from Monini
3. Some from Va.
- M Autocetus emmonsii Ly. (Hoplocetus?)
A large tooth Here?
- M Oxyterocetus crocodilinus Cope.
A tooth
- M O. quadratidens Ly. (Phypeter?)
Frag. of a jaw, 2 teeth & portion of a rib

- P. Phoca debilis Ly. (Squalodon)
Three molars. Here?
- M. P. wymani Ly. (Squalodon)
A tooth (canine?)
- E or M. Pontobasilus tuberculatus Ly.
Frag. of a tooth
- M. Pseudodelphinus acutidens Cope. (Champsodelphinus)
A tooth
- M. P. atropius C. (Iracanthus)
3 cerv. & 3 dorsals; 2 lumbar & 1 caudal;
1 Bumbax & 1 caudal; 3 lumbar (= 14 vert.)
- M. P. grandaeus Ly.
2 caudals, jr. (Others incl. frag. of upper jaw, fide Leidy)
- M. P. harlani Ly. (= P. grandaeus)
A post. dorsal
- M. P. spinosus Cope. (Iracanthus)
2 cerv., 3 dorsal, 8 lumbar
- M. P. sternus Cope. (Iracanthus)
2 lumbar
- M. Rhabdosteus lateralis Cope.
Portion of a muzzle & ? 3 teeth (Calvert)
- M. Squalodon mento Cope (Delphinodon)
4 teeth
- E/S. S. pelagius Ly.
Frag. of a jaw
- M. S. protervus Cope.
1 canine tooth
- M. Zanclus flagellatus Cope
A caudal (Others unthorax)
- M. Z. tysoni Cope
A lumbar. Here?
- M. Z. velox Cope
A lumbar

D. conradi

The 10 vert. from Md. with the type do not all, in my opinion, resemble it. The caudal, e.g., has very slender trans-
processes ^{thus} while the type lumbar has broad ones.

Hour-glass shape - Another, probably a 1st caudal, is similar. One of these lumbar has very thick epiphyses, while the others have thin ones. The trans. process in all the lumbar, however, are broad. In one somewhat less so, & it was on this acct., no doubt, that Cope added the caudals with spinous trans. processes.



At Richmond

1. Phocageneus venustus Ly (Delphinidae)
A tooth (Type)

2. Delphinus sp "An animal of the Delphinidae"
A jaw & several isolated teeth
Ly.

- Type - loc.
- ✓ *Squalodon atlanticus* Leidy M. Cumberland Co. N. J.
(= *Macrophoca atlantica*)
- ✓ *Squalodon vinearius* Leidy Matthias Vineyard
- ✓ " *holmesii* Leidy E.? Ashley R. S. C.
(= *Colophonodon holmesii* Leidy)
- ✓ *Squalodon pelagicus* Leidy E. Ashley R., S. C.
- ✓ " *pygmaeus* (Müller) E. 10 m. from Charleston S. C.
- " ~~*protervus* (Cope)~~
- ✓ " *debilis* (Leidy) Ashley R., S. C. (sands)
(= *Phoca debilis* Leidy) P.
- ✓ " *? modesta* (Leidy) " "
(= *Phoca modesta* Leidy)
- ✓ " *mento* Cope (*Delphinodon* Leidy) { Shockoe Cr. Ravine, near Richmond, Va.
- ✓ " *wymani* (Leidy) " " M. Virginia
- ✓ *Phocaenaeus venustus* Leidy (" f. Cope) Near Richmond, Va.
[The type tooth of this sp. is one of the types of Cope's *Squal. mento*]
- ✓ *Priscodelphium grandaevus* Leidy M. { Shuloh, N. J. lumbar
" *harlanii* Leidy { "Green Sand of Jersey" caudal
" *harlanii* Leidy { Mullica Hills, green sand of N. J.
- (= *P. grandaevus* f. Cope)
- ✓ *Tretosphyx uraeus* Cope (= *Priscod. f. Cope*) M. { Shuloh, N. J. lumbar
+ Mouth of Patuxent R., caudal
- ✓ *Priscod. acutidens* Cope. M. Chas. Co., near Pap. R.
- ✓ *Zarachis tyroni* Cope. M. Mouth of Pap. R. "water-worn & has been probably washed from the cliffs"
- ✓ *Zarachis velox* Cope. M. "From the Muscens mail from the pits of Reuben Ayres, near Shuloh, Cumberland Co., N. J."

	<u>Type-loc.</u>
✓ <i>Balaenoptera davidsonii</i> Cope	Cal.
✓ <i>Mesoteras kerrianius</i> Cope	N. C.
✓ <i>Chonoziphus</i> 5 sps. Leidy	Phosphate beds, S. C.
✓ <i>Mesoplodon prorops</i> Leidy	" "

T. Galumna
 November 1905 Dec. 1905

TIDES

1	3.40	9.28	15.30	22.01	4.16	10.10	16.10	22.35
2	4.32	10.22	16.26	22.55	5.07	11.08	17.10	23.28
3	5.28	11.25	17.25	23.52	6.00	12.08	18.12	24.20
4	6.25	12.30	18.31	24.48	0.25	6.52	13.09	19.20
5	0.57	7.25	13.35	19.43	1.18	7.40	14.07	20.25
6	1.52	8.18	14.37	20.52	2.09	8.29	15.00	21.27
7	2.50	9.10	15.37	21.55	2.58	9.14	15.46	22.22
8	3.40	9.57	16.20	22.50	3.44	9.57	16.30	23.10
9	4.27	10.39	17.05	23.38	4.25	10.39	17.11	23.50
10	5.10	11.20	17.45	—	5.05	11.20	17.54	24.30
11	0.20	5.49	11.57	18.25	0.27	5.45	12.00	18.35
12	0.57	6.25	12.34	19.05	1.04	6.25	12.42	19.18
13	1.33	7.00	13.10	19.45	1.40	7.07	13.25	20.00
14	2.08	7.37	13.50	20.26	2.18	7.52	14.09	20.44
15	2.45	8.18	14.32	21.09	3.00	8.42	14.55	21.30
16	3.26	9.05	15.18	21.54	3.45	9.38	15.45	22.15
17	4.10	9.58	16.07	22.40	4.32	10.30	16.40	23.05
18	4.58	10.55	17.00	23.31	5.22	11.34	17.40	23.58
19	5.50	11.55	18.02	24.24	6.14	12.23	18.42	24.50
20	0.25	6.42	12.58	19.05	0.52	7.07	13.34	19.47
21	1.22	7.38	14.00	20.12	1.45	8.01	14.31	20.50
22	2.20	8.32	14.56	21.15	2.40	8.58	15.29	21.54
23	3.12	9.25	15.52	22.15	3.35	9.50	16.22	22.55
24	4.05	10.18	16.44	23.12	4.30	10.45	17.15	23.50
25	4.57	11.05	17.35	—	5.25	11.35	18.06	—
26	0.05	5.46	11.55	18.25	0.42	6.18	12.27	18.58
27	0.55	6.37	12.45	19.14	1.32	7.10	13.16	19.45
28	1.45	7.27	13.34	20.03	2.20	8.05	14.07	20.35
29	2.35	8.18	14.22	20.53	3.07	8.57	15.00	21.24
30	3.25	9.10	15.15	21.42	3.53	9.50	15.54	22.12
31	—	—	—	—	4.40	10.45	16.49	23.03

Jarhaver

Tidal Differences

Time		Height		Ratio & ranges
HW	LW	HW	LW.	
Time meridian 75° W		Mean low water		
h. m. -3-19	h. m. -3-03	ft +0.3	ft 0.0	1.23

Internal ~~Interval~~

Range of tide

mean		Tropic		Mean	Spring	Neap	Great Tropic
HWI	LWI	HHWI	LLWI				
h. m. 3-15	h. m. 10-10	h. m. 3-27b	h. m. 9-52a	ft 1.5	ft 1.7	ft 1.3	ft 1.6.

San Lorenzo, Hern Bay - El Salvador 1895

Lat. 38° 45' N

Long. 91° 16' 33"

Time 5 h. 06 m.

Standard Porty reference - Barometer

Page 99.

Local references

Time

Blackstone Is. Md.
Standard Wash

June		Height	
HW	L.W.	HW	L.W.
^{hr} _m -6-20	^{hr} _m -6-30	^{hr} -1.0	^{hr} 0.0

Colonial Beach, Va.
Standard Wash

June		Height	
HW	L.W.	HW	LW
^{hr} _m -5-56	^{hr} _m -6-01	^{hr} -1.2	^{hr} 0.0

$$\begin{array}{r}
 13.52 \\
 3-13 \\
 \hline
 10-33
 \end{array}$$

$ \begin{array}{r} 13.11 \\ 3-3 \\ \hline 10.8 \end{array} $	$ \begin{array}{r} 19.35 \\ 3-19 \\ \hline 16-16 \end{array} $
	4

$ \begin{array}{r} 172 \\ 158 \\ \hline 55 \end{array} $	$ \begin{array}{r} 40 \\ 100 \\ \hline 220 \end{array} $
$ \begin{array}{r} 6 \overline{) 330} \\ \underline{55} \end{array} $	$ \begin{array}{r} 25 \\ 10 \end{array} $

Baltimore

Fairhaven (Chesapeake Beach)

1905. October

October

November

December

	7	{ 1.17 7.2	7.53 13.52 20.00	
			0.2 0.9 0.2	
Sun	8	{ 2.20 1.1	8.54 14.57 21.08	
			0.2 1.0 0.2	
	9	{ 3.22 1.1	9.50 15.58 22.10	
			0.1 1.0 0.2	
	10	{ 4.18 1.1	10.39 16.50 23.08	
			0.1 1.1 0.2	
	11	{ 5.05 1.1	11.22 17.35 23.57	
	12	5.50	12.00 18.17	
	13	0.41	6.30 12.37 18.55	
	14	1.22	7.05 13.11 19.35	
Sun	15	2.00	7.40 13.47 20.12	
	16	2.35	8.15 14.23 20.53	
	17	3.13	8.50 15.04 21.38	
	18	3.52	9.33 15.47 22.22	
	19	4.35	10.21 16.34 23.10	
	20	5.23	11.15 17.27	
	21	0.02	6.16 12.15 18.27	
SUN	22	0.58	7.11 13.20 19.30	
	23	1.53	8.08 14.22 20.26	
	24	2.51	9.02 15.20 21.39	
	25	3.45	9.55 16.15 22.35	
	26	4.37	10.45 17.06 23.30	
	27	5.25	11.34 17.57	
	28	0.21	6.14 12.20 18.46	
SUN	29	1.13	7.00 13.07 19.32	
	30	2.00	7.48 13.53 20.22	
	31	2.48	8.36 14.40 21.10	

L.W. H.W.

L.W. H.W.

L.W. H.W.

{ 10.8 3.46
22.57 16.16

{ 10.44 4.21
23.32 16.53

{ 16 4.56
17.20 17.34

{ 10.10
12.01

{ 0.49
12.44

{ 1.32
13.31

{ 2.20
14.24

{ 3.13
15.24 8.56

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM
WASHINGTON, D. C.

November 11, 1907.

Ward's Natural Science Establishment,
Rochester, New York.

Gentlemen:-

Referring to our previous correspondence relative to the skull of a fossil cetacean, which Dr. True wished to secure, I have now to state as follows:-

It will apparently be impossible for the Museum to purchase the skull before the close of the fiscal year, and even then I can promise nothing certain. I want to suggest, therefore, that you allow us to obtain the skull by exchange for other materials through Mr. E. E. Howell, of this city, and that you look to him for an equivalent. We have no fault to find with the price, and I only regret that I have to resort to such a subterfuge to obtain it.

Please drop me a line and I will then lay the matter before the Assistant Secretary for approval.

Yours very truly,

J. P. Merrill
Head Curator of Geology.

Over

*Copy 14228 S
Hydrobates 113179 S*

My dear Prof. Tracy
What shall I say to Dr. Merrill?

You probably remember the circumstances.

I told you that I had seen this shell
while I was at the South Lake Museum
You expressed a desire to examine it &
I borrowed it and sent it on to
you. Then you thought the Museum
should purchase it - and I tried to
get a price set upon it. Failing in this
I offered, I think it was, ten dollars for
it. This was accepted & I sent you a
bill for just what it cost. There was
not a penny for us in the whole
transaction. It was entirely an
accommodation to you that I did anything
about it - now we don't want to take
something from Haverell to pay for it.

We will let the A.C. run for any reasonable
time you may return the shell. In the
letter now I think you should pay the
express charges mentioned in my letter.

Very yours
Frank A. Haverell

Mit dem Ausdruck besten Dankes für Ihre freundliche Zusendung von

Description of a new genus & species
of fern leaf from the miscane of
Manila.

grüsst hochachtungsvollst

Prof. MAX WEBER.

EERBEEK,

19th July 1906

WASHINGTON, D.C.
JUL 29
BRIEFKAART
(CARTE POSTALE)



ALGEMEENE POSTVEREENIGING (UNION POSTALE UNIVERSELLE)

Zijde voor het adres bestemd. (*Côté réservé à l'adresse*).

Frederick W. True Esq.

Head Curator Depart. of Biology
United States National Museum.

Washington City

U. S. America

POST CARD

UNIVERSAL POSTAL UNION



CARTE POSTALE

UNION POSTALE UNIVERSELLE

GREAT BRITAIN & IRELAND



Dr. Frederick L. True,

U. S. National Museum,

Washington D.C.

U. S. A.

POST CARD

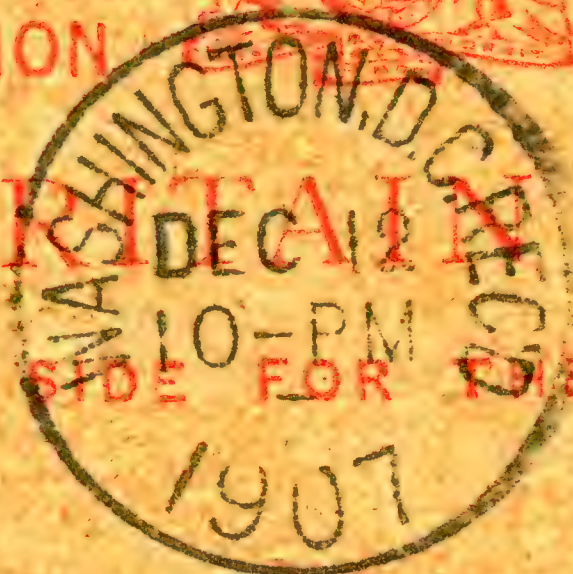
UNIVERSAL POSTAL UNION

CARTE POSTALE

UNION POSTALE UNIVERSELLE

GREAT BRITAIN & IRELAND

THIS SIDE FOR THE ADDRESS



Dr. F. W. True,

U. S. National Museum,

Washington.

D.C.

U. S. A.

Buttrick House (N. H.)
Dec. 2nd. 1907.

Many thanks for
interesting paper on
Anoplomassa frei-
pata.

Wm. H. Bond

POST CARD

UNIVERSAL POSTAL UNION

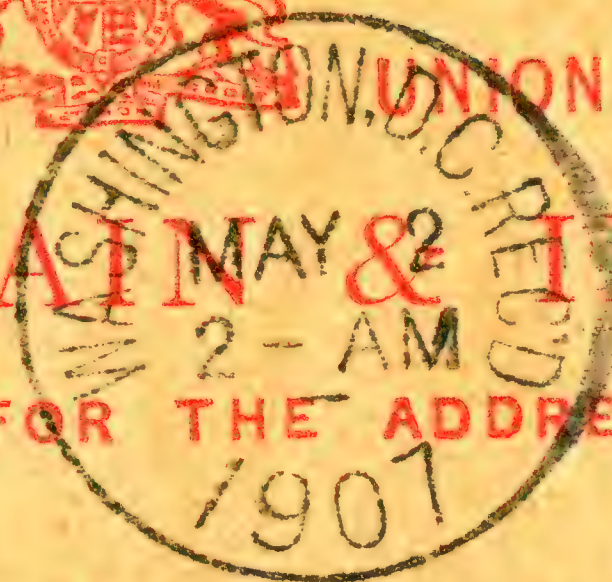


CARTE POSTALE

UNION POSTALE UNIVERSELLE

GREAT BRITAIN & IRELAND

THIS SIDE FOR THE ADDRESS



H. Frederick W. True,

U. S. National Museum,

Washington. D.C.

U. S. A.

Bethel House (N.H.)

April 22nd. 1907.

Many thanks for
interesting memoir
on Scrophus
pyramus.

With kind regards,

P. North Woodman

British Museum (N.H.)

May 15th. 1908

Many thanks for
interesting paper on
Schizodelphis and
Priscodelphinus.

A. Smith Woodward

POST CARD

UNIVERSAL POSTAL UNION



CARTE POSTALE

UNION POSTALE UNIVERSELLE

GREAT BRITAIN & IRELAND

THIS SIDE FOR THE ADDRESS



H. Frederick W. True,

U. S. National Museum,

Washington.

D.C.
U. S. A.

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

S. P. LANGLEY
Secretary, Smithsonian Institution

RICHARD RATHBUN
Assistant Secretary, in charge of
U. S. National Museum

WASHINGTON, D. C.,

July 1, 1904.

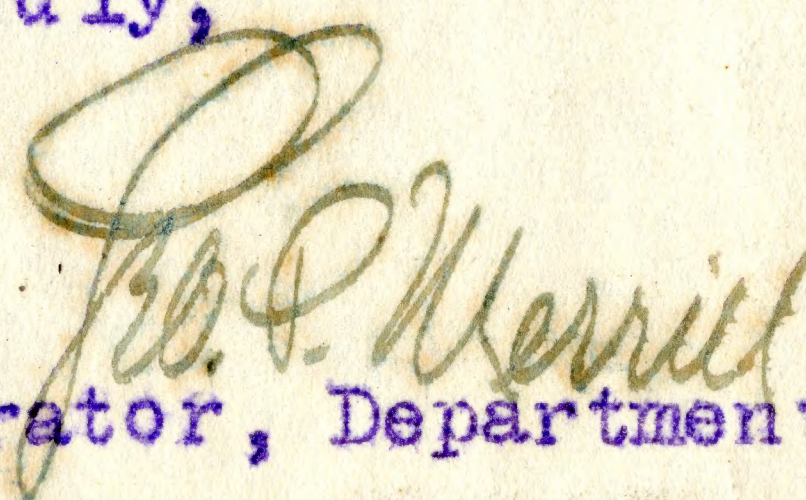
Dear Dr. True:

I want to suggest to you the possibility of your undertaking to describe and monograph the Zeuglodon remains in the section of vertebrate paleontology of this department. This is a matter which we have often discussed, and it would seem to me that the present time is very opportune for our making any arrangement you may desire -- this for reasons you will readily understand.

Moreover, as you are aware, Mr. Schuchert, who collected these remains, will shortly leave us for New Haven, and I am, of course, anxious that he should write up the geological part before he becomes too involved in his work in connection with the University.

I shall be pleased to consult with you on the subject at any time you desire.

Yours very truly,


Head Curator, Department of Geology.

Dr. F. W. True,
Curator, Department of Biology,
U.S. National Museum.

SMITHSONIAN INSTITUTION.

UNITED STATES NATIONAL MUSEUM.

See neck dentition
of Fur Seal. Is it
not like Zanglodon?

See Allen on this
point & on position of
acromion of scapula
Also Marie &c. on the
osteology & myology of these
sea lions

Coring Whale (Name)

< Nature, Feb. 18, 1904,

370